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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
STUCKER, JEFFREY J	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/787,437	AIDA ET AL.	
	Examiner	Art Unit	
	Jeffrey Stucker	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *5,7,12,13,20 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-11 and 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ~~6/25/01~~, 8/17/01, 8/3/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This Office Action is in response to Election filed 23 September 2004. Applicant's election with traverse of Group II, claims 4, 6, 10, 11, 14, and 15 in the Election is acknowledged.

Applicant apparently argues that there is a technical relationship among the different categories of claims set forth in 37 CFR § 1.475(a), which is quoted. Applicant states that the claimed protein can be considered to be analogous to claims directed to the protein of Group I, the methods for inducing apoptosis using a protein of Groups III and IV and the methods for preventing or treating cancer or AIDS of Groups V and VI. Applicant further did not see how the provided art indicated that the claims lack a corresponding special technical feature. Applicant further argues that restriction requirement does not indicate how the references anticipate or render obvious the claimed invention.

Applicant's reference to 37 CFR § 1.475(a) is appropriate. However, it is noted that this section *requires* a special technical feature.

> (a) An international and a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. **The expression "special technical features" shall mean those technical features that define a contribution which each of the**

> **claimed inventions, considered as a whole, makes over the prior art.** [emphasis added]

It was demonstrated in the Restriction Requirement and discussed further below that the instant claims lack a special technical feature.

Applicant's discussion of 37 CFR § 1.475(b) is incomplete. Applicant is correct that this section sets forth various categories of inventions that can examined together.

> (b) An international or a national stage application containing claims to different categories of invention will be considered to have unity of invention **if the claims are drawn only to one of the following combinations** of categories....[emphasis added]

However, note that the highlighted phrase requires that claims be limited to *only* the specific combinations which is not the situation with the instant claims.

As indicated in the Restriction Requirement, and noted by applicant, the common technical feature is truncated HIV Vpr protein. The relevance of the references was that each taught truncated HIV Vpr, thereby indicating that truncated HIV Vpr protein is not a contribution over the art. For example, Lavalle et al. teach HIV Vpr protein truncated by 18 amino acids which would be a truncation of 15 amino acids plus one to several additional amino acids deleted. See the title, second, forth, and fifth paragraphs. Yuan et al. teach HIV Vpr protein

truncated by 26 amino acids which would be a truncation of 15 amino acids plus one to several amino acids deleted. See the abstract and the second paragraph under the results section. Dedera et al. teach a Vpr gene which, depending on the HIV-1 strain, encodes protein products that are 78-96 amino acids long. See the second paragraph. Therefore, the claimed technical feature is not a contribution over the art thereby not meeting the criteria as a "special technical feature" and, thus, the claims cannot be said to have unity of invention.

Note that Piller et al. was previously cited to demonstrate that truncated HIV-1 Vpr was known. However, this reference is withdrawn because it teaches a truncation of only 9 amino acids. See page 114.

The inventions directed groups I and II, protein and gene, respectively, are rejoined and examined together for this Office Action. Claims 5, 7, 12, 13, 20, and 21 are withdrawn as being directed to non-elected inventions. Claims 1-4, 6, 8-11, and 14-19 are examined and rejected.

The requirement is still deemed proper and is therefore made FINAL.

The specification is objected to for the following informalities:

The specification and claims are objected to for failing to adhere to the requirements of the sequence rules. Applicant must append SEQ ID Nos. to all mentions of specific sequences in the specification and the claims. For example, see page 5 of the specification. See 37 CFR § 1.821(d).

Appropriate correction is required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4, 14, and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims read on a product of nature because the protein and the gene that encodes it are naturally occurring. For example, Dedera et al. which teach a Vpr gene that, depending on the HIV-1 strain, encodes protein products that are 78-96 amino acids long. See the second paragraph.

Because the claimed protein and gene are not isolated and purified, the instant claims are rejected as being non-statutory subject matter. Applicant is cautioned against the addition of new matter; support for any amendments should be indicated by page and line number where support in the specification is found.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6, 8-11, and 14-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 does not further limit independent claim 1. The independent claim is limited to Vpr truncated 15 amino acids from the C terminal and no indication of other changes required whereas claim 2 allows for a much larger truncation as well as other changes or deletions that are not encompassed by a Vpr truncated 15 amino acids. Therefore, it is not clear what the metes and bounds of the claims are.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 8-11 and 16-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

"[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *Genentech Inc. v. Novo Nordisk* 108 F.3d 1361, 1365, 42 USPQ2d 1001, 1004 (Fed. Cir. 1997); *In re Wright* 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); See also *Amgen Inc. v. Chugai Pharm. Co.,* 927 F.2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed. Cir. 1991); *In re Fisher* 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970). Further, in *In re Wands* 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) the court stated:

> Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in *Ex parte Forman* [230 USPQ 546, 547 (BdPatAppInt 1986)]. They include (1) the quantity of experimentation necessary, (2) the

> amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

The nature of the invention is directed to a medicament comprising HIV Vpr truncated 15 amino acids from the C terminal for treating or preventing AIDS. The breadth of the claims is broad. The claimed composition is claimed by name without claiming or describing the specific sequence of the claimed invention.

The quantity of experimentation necessary is high and the relative skill of those in the art is high. The state of the prior art in regards to the sequence and structure of HIV Vpr and the nucleic acid encoding it is relatively high. However, the art is not developed in a medicament comprising HIV Vpr or a gene encoding to treat or prevent AIDS.

The predictability or unpredictability of the art, and unpredictability demonstrated by the years of effort and nothing to show for it in regards to a medicament for preventing AIDS. The claimed protein, and the gene that encodes it, "Vpr truncated 15 amino acids from the C terminal" is known and characterized. See previously cited references Lavalle et al., Yuan et al., and Dedera et al. for the state of the art. As an indication of the uncertainty of the art, Lavalle et al. teaches that a truncation of 18 amino acids renders the protein inactive. In addition, the art indicates that the apoptotic activity is in the C terminal domain. See Arunagiri et al. from the title to the conclusion.

The amount of direction or guidance presented is very limited. The presence or absence of working examples in the specification is limited to only one working example of transforming a HeLa cell line with a nucleic acid sequence encoding a truncated HIV Vpr protein. The protein is known, and expected, to be toxic (as required by the claims: "apoptosis inducing agent") and, as expected, the cells expressing the toxic protein showed induction of apoptosis. In addition, HeLa cells are not representative of HIV infection and do not correlate with infection. HIV infects CD4 lymphocytes which HeLa cells are not; HeLa cells are lab adapted cervical cancer

cells and are not found *in vivo* nor are relevant as a model of HIV prevention or treatment. Other relevant consideration are the existence of latent forms of the virus, the ability of the virus to evade immune responses in the central nervous system due to the blood-brain barrier, and the complexity and variation of the elaboration of the disease. The existence of these obstacles establish that the contemporary knowledge in the art would not allow one skilled in the art to make and use the claimed invention with a reasonable expectation of success and without undue experimentation.

In addition, Vpr is toxic and can induce apoptosis in non-HIV infected cells. Infected cells produce Vpr by virtue of the infection. An apoptosis inducing medicament comprising truncated Vpr would reinforce the action of HIV vis-à-vis cell destruction, even of uninfected cells. Applicant has not taught how one can apply the "medicament" so as to treat or prevent AIDS without wholesale apoptosis in healthy cells.

The instant invention, based on the evidence as a whole, in light of the factors articulated by the court in *In re Wands*, lacks an enabling disclosure.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 8-11, and 14-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Stewart et al.

The instantly claimed invention is directed to a gene that encodes HIV-1 Vpr truncated 15 amino acids from the C terminal wherein one to several amino acids are substituted, inserted, and/or deleted and having apoptosis inducing activity and the protein.

Stewart et al. teach HIV-1 Vpr truncated 15 amino acids from the C terminal wherein one to several amino acids are substituted, inserted, and deleted and having apoptosis inducing activity and a gene that encodes it. See the entire reference, in particular the "DNA constructs" under the MATERIALS AND METHODS section. The truncated construct is designated *vprX* which is truncated at the C terminal end. The resultant protein induces apoptosis. See the entire reference.

The limitation that the composition is a medicament is an intended use and as such does not carry any patentable weight

because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The intended use of the claimed invention as a medicament does not result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claims. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

A compound and all of its properties are inseparable; they are one and the same thing (see *In re Papesch*, CCPA 137 USPQ 43). Simply stating a new property or a new intended use of the nucleotides or peptides does not render the instant application free of the art.

Thus, the instantly claimed invention is anticipated by Stewart et al.

No claims are allowed.

Papers related this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989).

The Group 1600 Official Fax number is: (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center representative whose telephone number is (571)-272-1600.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Stucker whose telephone number is (571)-272-0911. The examiner can normally be reached Monday to Thursday from 7:00am-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached on (571)-272-0902.

JEFFREY STUCKER
PRIMARY EXAMINER